

THE CLAIMS

What is claimed is:

- 5           1. A pin removal and placement tool comprising:  
          a body member;  
          a drive shaft extending from the body member, the drive shaft having a longitudinal  
axis and a distal end which terminates at a tip;  
          a striking surface on the body member, the striking surface having a striking axis  
10       perpendicular thereto that intersects the longitudinal axis of the drive shaft at an acute angle  $\theta$ ,  
the striking surface facing away from the tip of the drive shaft whereby a blow struck against  
the striking surface will advance the drive shaft in the direction the tip is facing; and  
          a handle on the body member, the handle extending transversely from a plane de-  
fined by the longitudinal axis of the drive shaft and the striking axis of the striking surface.  
15           2. A tool as defined in claim 1, further comprising an anvil plate on the body member,  
the anvil plate defining the striking surface.  
          3. A tool as defined in claim 1 wherein the body member defines a contact surface that  
20       extends in generally parallel relation to the longitudinal axis of the drive shaft.  
          4. A tool as defined in claim 2 wherein the body member comprises a rear edge and a  
striking plate fixedly mounted along the rear edge and at right angles thereto, and wherein the  
anvil plate is mounted on the striking plate perpendicularly thereto.  
25           5. A tool as defined in claim 4 wherein the striking plate has a tapered configuration  
having a base and an opposite narrow end, the base being situated at the upper rear portion of  
the body member, the narrow end being situated at the lower rear portion, and wherein the anvil  
plate is centered on the base of the striking plate.  
30           6. A tool as defined in claim 5 wherein the narrow end of the striking plate has two  
legs forming a slot between them, the slot having a width of about the thickness of the body  
member and an edge of the body member is received between the legs.

7. A tool as defined in claim 5 wherein the striking plate and anvil plate are integrally formed with the body member.

5 8. A pin removal and placement tool comprising:  
a body member defining a contact edge;  
a drive shaft extending from the body member, the drive shaft having a longitudinal axis and a distal end which terminates at a tip, the drive shaft extending from the body member in generally parallel relation to the contact edge with the contact edge extending beyond the tip of the drive shaft;

10 an anvil plate on the body member, the anvil plate having a striking surface and a striking axis perpendicular to the striking surface, the striking axis intersecting the longitudinal axis of the drive shaft at an acute angle  $\theta$ , the striking surface facing away from the tip of the drive shaft whereby a blow struck against the striking surface will urge the drive shaft in the direction the tip is facing; and

15 a handle on the body member, the handle extending transversely from a plane defined by the longitudinal axis of the drive shaft and the striking axis of the anvil plate.

20 9. A tool as defined in claim 1 or claim 8 wherein the handle is removably attached to the body member, and is dimensioned and configured to be selectively mounted on the tool to extend from one side or the other of the body member.

25 10. A tool as defined in claim 1 or claim 8 wherein the handle is fixedly mounted to the body member, the handle extending from both sides of the body member.

11. A tool as defined in claim 1 or claim 8 further including an adaptor sleeve that is dimensioned and configured to be slidably mounted on the drive shaft to extend beyond the drive shaft, and to receive a retaining pin therein.

30 12. A tool as defined in claim 1 or claim 8 wherein the angle  $\theta$  is about 40 to 60 degrees.

13. A tool as defined in claim 12 wherein the angle  $\theta$  is about 40 to 50 degrees.

14. A tool as defined in claim 3 or claim 8 further comprising a shoe mounted thereon and comprising a shim plate positioned between the contact surface and the drive shaft.

15. A tool as defined in claim 14 wherein the shoe is removably secured to the body member.

16. A method of removing a retaining pin from a first object and a second object, the first object and the second object having aligned holes through which the retaining pin extends to secure the objects together, by utilizing a tool comprising a drive shaft extending from a body member, the drive shaft having a longitudinal axis and a distal end which terminates at a tip, a striking surface on the body member, the striking surface having a striking axis perpendicular thereto that intersects the longitudinal axis of the drive shaft at an acute angle  $\theta$ , the striking surface facing away from the tip of the drive shaft whereby a blow struck against the striking surface will urge the drive shaft in the direction the tip is facing, a handle on the body member, the handle extending transversely from a plane defined by the longitudinal axis of the drive shaft and the striking axis of the striking surface, the method comprising the steps of:

gripping the handle of the tool with one hand of the user;

aligning the tip of the drive shaft of the tool with one end of the retaining pin; and

striking the striking surface with a hammer held in the other hand of the user one or more times as required to drive the retaining pin from the aligned holes sufficiently to separate the two objects.

17. A method of installing a retaining pin into aligned holes of a first object and a second object in order to secure the objects together by the pin, by utilizing a tool comprising a drive shaft extending from a body member, the drive shaft having a longitudinal axis and a distal end which terminates at a tip, a striking surface on the body member, the striking surface having a striking axis perpendicular thereto that intersects the longitudinal axis of the drive shaft at an acute angle  $\theta$ , the striking surface facing away from the tip of the drive shaft whereby a blow struck against the striking surface will urge the drive shaft in the direction the tip is facing, a handle on the body member, the handle extending transversely from a plane defined by the longitudinal axis of the drive shaft and the striking axis of the striking surface, the method comprising the steps of:

partially inserting the retaining pin into the aligned holes, leaving a portion of the retaining pin protruding from the aligned holes;

gripping the handle of the tool with one hand of the user;

aligning the tip of the drive shaft of the tool with the protruding end of the retaining

5 pin; and

striking the anvil plate with a hammer held in the other hand of the user one or more times as required to drive the retaining pin into the aligned holes sufficiently to secure the two objects together.

10 18. A method as defined in claim 16 or claim 17 utilizing a tool wherein the handle is removably mountable on the tool to extend transversely thereof from either one or the other of the opposite sides of the tool to thereby accommodate either a left-handed or right-handed user, the method further comprising a preliminary step of:

15 mounting the removable handle on the tool to extend from a selected side of the tool so as to accommodate the handedness of the user.

19. A method as defined in claim 17 further including a step of placing one end of an adaptor sleeve over the drive shaft and placing one end of the retaining pin in the other end of the adaptor sleeve to carry out the step of inserting the retaining pin into the aligned holes.